Satisfaction and Adherence in a Social Support Intervention Among Women with Congestive Heart Failure

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by

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Abstract

Patient satisfaction is a significant predictor of adherence to medical interventions. However, limited research has evaluated patient satisfaction as a predictor of adherence to a social support intervention. The purpose of this study was to evaluate satisfaction as a predictor of adherence to a social support therapy intervention for women with Congestive Heart Failure (CHF). CHF is a debilitating disease characterized by the heart's inability to pump sufficient blood to the body. The study also examined the relationship of satisfaction to changes in state and trait anxiety, depression, and perceived stress during the course of the intervention. Seventeen women (mean age = 55.1 ± 11.1) with CHF participated in the study. The sample was 59% African American and 41% Caucasian. Participants completed measures of depression, state and trait anxiety, and perceived stress prior to participation in an eight-week group social support intervention. Post-intervention measures of depression, state anxiety, perceived stress, and overall satisfaction with the intervention were completed after the 8-week intervention. Participants also reported reasons for missing group sessions and indicated the portions of the intervention that they found most helpful as well as portions that they found least beneficial. Satisfaction was not significantly correlated with attendance in the support group sessions. In addition, satisfaction was not associated with reductions in anxiety, depression, or perceived stress during the course of the intervention. Although satisfaction did not appear to be important for adherence in the present study, satisfaction may be relevant for adherence to social support interventions in other patient populations.

Satisfaction and Adherence in a Social Support Intervention Among Women with Congestive Heart Failure

Heart failure is a serious chronic disease that is rising in prevalence (Erhardt & Cline, 1998). Although many advances for treatment of heart failure have been discovered throughout recent years, the prognosis for an individual diagnosed with heart failure is poor. It is a debilitating and irreversible disease that is only treatable through symptom control (Murberg & Bru, 2001). Heart failure is associated with frequent hospital readmission, which contributes to the continuing increased costs of health care (Erhardt & Cline, 1998).

Congestive Heart Failure (CHF) is the weakening of the heart muscle which results in insufficient blood being pumped to the body by the heart (Yu, Lee, Woo, & Thompson, 2004). A normally functioning heart pumps out about half of the blood in the left ventricle with each beat of the heart. This proportion of blood pumped out is called the ejection fraction and is usually about 55% (Kereiakes & Wetherill, 2001). Patients with CHF have an ejection fraction of less than 40% (Kereiakes & Wetherill,2001). Blood flow from the heart is slowed, causing the veins to back up with blood. This back up causes congestion in the tissues (American Heart Association, 2005). Many factors can lead to CHF including, but not limited to, coronary disease, scar tissue buildup due to previous myocardial infarction, high blood pressure, heart valve disease, cardiomyopathy, and heart defects (American Heart Association, 2005). The heart continues to work, but does not operate at a normal level.

Due to the increased physical burden of CHF on the body, it often impedes patients' performing of daily activities. A person diagnosed with CHF is likely to experience severe fatigue, difficulty breathing, edema (swelling) of the legs and ankles, and weight gain due to fluid retention (Kereiakes & Wetherill, 2001). Treatment for CHF usually consists of rest,

modified diet and daily activities, and medications. If the cause of CHF is discovered, such as high blood pressure, then that particular condition should be treated and corrected in order to alleviate symptoms of CHF (American Heart Association, 2005).

Social Support and Heart Failure

It has been estimated that 25%-40% of cardiac patients do not adhere to their prescribed treatments (DiMatteo, 2003). Patients with CHF may be more motivated to follow their treatment regimen if they have adequate social support. Therefore, the availability of social support may be a vital part of recovery for patients with CHF. Past research has indicated three main types of social support. The three types are emotional support, instrumental support, and informational support (Hamilton, 2004). Emotional support is the most widely studied and is defined by someone receiving love, encouragement, and having an individual in whom to confide concerns. Instrumental support includes receiving material help, such as financial aid and/or household help. Informational support is defined as a person receiving information about their specific needs and/or condition (Hamilton, 2004). Recent research has shown that social support plays an important role in health outcomes for many disorders and diseases, including CHF (DiMatteo, 2003).

Cohen (1988) states that there are two mechanisms, physiologic and behavioral, linking social support and disease. From a physiologic point, negative emotions, such as depression, could activate the neuroendocrine system. This activation could lead to major cardiac events or death (Luttik, Jaarsma, Moser, Sanderman, & Veldhuisen, 2005). It has been suggested that social support serves as a buffer against neuroendocrine responses to stress (Cohen & Williamson, 1988). From a behavioral perspective, high levels of social support may motivate

individuals to adhere to their treatment regimens and engage in more positive health behaviors (Erhardt, 1998).

Research has revealed a significant link between lack of social support and hospital readmission rates (Chin & Goldman, 1997). Cline, Broms, Willenheimer, Israelsson, and Erhardt (1996) found that 37% of heart failure patients were readmitted within 1 year of hospitalization. Another study found that one principal factor contributing to hospital readmission was a failed social support system (Ghali, Kadakia, Cooper, & Ferlinz, 1998). Krumholz, Butler, and Miller (1998) found that low level of emotional support was a strong predictor of cardiovascular events in the year following heart failure patients' hospital admissions. This increase in hospital readmissions continues to burden the healthcare system and contributes to its rising costs. Social integration and social support for heart failure patients may help to decrease hospital readmissions.

Social relationships among patients with CHF may play a role in their success with treatment (Murberg, Bru, & Stephens, 2002). Studies have indicated that low social support and social isolation among cardiac patients is associated with higher mortality (Murberg et al, 2002). For women, high marital quality was shown to relate significantly to survival over a four-year period (Coyne, Rohrbaugh, Shoham, Sonnega, Nicklas, and Cranford, 2001). Weak social relationships may lead to a poor network of support that may be linked to poor compliance to prescribed regimens. CHF patients may gain feedback from social interaction with others that could aid them to modify risky behaviors, such as not following a prescribed treatment regimen (Murberg et al., 2002). Thus, social support may play an important role in the health and well-being of individuals living with CHF.

Psychological Factors and Social Support Intervention Success

Chronic disease patients. Research has indicated that group interventions have been successful for many populations in reducing psychological distress (Chujo, Mikami, Takashima, Saeki, Ohsumi, Aogi, Okamura, 2005). Group interventions have the best outcome when they are tailored to specific needs of the group (Fawzy, Fawzy, Hyun, Elashoff, Guthrie, Fahey, & Morton, 1993). Social support interventions are important because they provide individuals, especially those with chronic illnesses, with a way to communicate with others who have similar experiences. Johnson and Lane (1993) outline basic purposes of social support groups for cancer patients, including free expression of feelings about living with the disease, fostering of support with others, educating participants about the disease itself, and helping participants learn better coping skills. These purposes are relevant for most individuals with chronic disease including heart failure patients.

Research has shown that poor symptom control and decline in functionality are correlated with high levels of anxiety and depression. It has been suggested that as many as 30-60% of hospitalized cardiac patients experience depression (Denollet & Brutsaert, 1995). In a social support phone intervention study, it was found that those cardiac disease patients randomized into the intervention group had statistically significant reductions in psychological distress in comparison to the control group (Bambauer et al., 2005). Linden, Stossel, and Maurice (1996) found that individuals with CAD, as a whole, had a significant drop in psychological distress and general improvement in quality of life after participating in a psychosocial intervention. It is suggested that psychosocial interventions should be implemented in all cardiac rehabilitation programs, however more research needs to be completed to discover aspects patients find most beneficial (Linden et al., 1996).

Heart failure patients. A large number of patients living with CHF report high levels of psychological distress, which is associated with high rates of morbidity and mortality (Yu et al., 2004). Psychological factors such as depression, anxiety, and perceived stress have been examined in heart failure patients. In a longitudinal study, Murberg, Bru, Svebak, Tveteras, & Aarsland (1999) found a significant correlation between depression and death in patients with CHF. However it has also been found that social support serves as a buffer against depressive symptoms in patients with cardiac disease (Yu et al., 2004). Therefore, it is important to address depression in cardiac patients and identify ways to reduce depression.

Interestingly, little research has examined anxiety and stress specifically among heart failure patients. One recent study indicated that women with heart failure had higher anxiety than women in a normative comparison group (Riedinger & Dracup, 2002).Women tend to report higher psychological distress and may exhibit more depressive symptoms than men (Murberg & Bru, 2001). Thus, women with heart failure may benefit from a program providing information and mutual support from other women. Arthur, Wright, and Smith (2001) found that women with heart failure in a community program felt both supported and supportive. It has also been determined that patients with CHF living alone or without a spouse are at risk for greater psychological distress (Coyne, Rohrbaugh, Shoham, Nicklas, & Cranford, 2001).

Participation in a supportive education intervention for hospitalized heart failure patients was associated with increased self-care behaviors following hospital discharge (Jaarsma, Abu-Saad, Dracup, & Halfens, 2000). The authors suggest that social support by educators and health care providers may help to decrease loss of information. A hospital inpatient videotape intervention revealed that patients who had greater knowledge of heart failure upon discharge were more likely to engage in self-care activities at home (Smith, Koehler, Moore, Blanchard, &

Ellerbeck, 2005).

In general, research supports the implementation of support group therapy for many chronically ill individuals (Dobkin & Costa, 2000). Psychosocial therapy groups also have the potential to contribute to lowering costs of healthcare (Sobel, 1995). Social support groups specifically geared toward women with CHF have not been studied previously. Indeed, it is important to address this specific population due to the significant toll CHF has on the body and mind.

Client Satisfaction with Treatment

Client satisfaction with health care has received more attention in recent years, as reflected in the growing number of research studies being conducted that deal with client satisfaction. Patient satisfaction is important because it enhances help-seeking behaviors in individuals, improves treatment compliance, and helps foster the relationship between patient and health professional (Spear, 2003). Satisfaction surveys enable health professionals to identify the positive and negative attributes within the system of care through the patients receiving the care (2003).

It is believed that satisfaction can be used as a predictor of health-related behavior (Linn, Linn, & Stein, 1982). Research shows a strong relationship between client satisfaction and treatment outcomes. Patients who are more satisfied with treatment are more likely to adhere to treatment regimens (Renzi et al., 2005). Chronic pain patients who were more satisfied with treatment were also more compliant with treatment (Hirsh, et al., 2005).

Although there has been a recent upsurge of interest in patient satisfaction and treatment compliance, no prior studies have examined the association between patient satisfaction and

social support therapy. Given the apparent health benefits of social support for a variety of patient groups, and the importance of satisfaction for treatment compliance, it is important to address the influence of satisfaction on treatment compliance with social support therapy among patients with CHF.

The purpose of this study is to examine adherence to a social support group intervention for women with CHF. Outcomes of the study include perceived stress, anxiety, depression, and satisfaction with the overall treatment. Stress, anxiety, and depression will be evaluated at baseline before intervention. All outcome variables will be assessed again following the final group therapy session. It is predicted that higher levels of satisfaction with the intervention will predict therapy adherence. It is also hypothesized that satisfaction will predict change in depression, state-anxiety, and perceived stress from baseline until completion of the intervention.

Method

Participants

Seventeen women (mean age=55.1 ± 11.1, range: 39 to 84) diagnosed with Congestive Heart Failure were recruited from outpatient cardiology clinics at The Ohio State University. All participants were diagnosed with CHF and had a severity class of II, III, or IV, reflecting progressively increasing degrees of disease severity. Over the duration of 12 months, three independent groups were recruited for the study. The first cohort consisted of 9 participants, the second cohort consisted of 5 participants, and the third cohort consisted of 3 participants. These three groups met independently of each other. All of the participants were part of a larger randomized study with a no-treatment control group. Because the control group did not receive the intervention, control group data are not included in this study. All volunteers were paid $10

for their participation.

Materials

The materials used for this study consisted of self-report pencil and paper questionnaires.

Patient Information Questionnaire. Participants reported demographic information, including marital status, race/ethnicity, education, and age.

Center for Epidemiologic Studies Depression Inventory. This 20-item questionnaire addresses depressive symptoms during the previous 7 days (Radloff, 1977). Each item is rated on a Likert-type scale with responses ranging from "0" to "3". The internal consistency for this scale is .85 and the test-retest correlations range from .51 to .67.

Cohen's Perceived Stress Scale-10. The questionnaire assesses the amount of stress an individual has had in the past 7 days (Cohen, Kamarck, & Mermelstein, 1983). It is made up of 10 items, each rated on a Likert-type scale ranging from 0-4. Test-retest reliability scores range from .55 to .85 and Cronbach's alphas range from .84 to .86.

State-Trait Anxiety Inventory (STAI). This questionnaire assesses the current (state) level of anxiety and general (trait) level of anxiety an individual experiences. Each scale includes 20 items rated on a Likert-type scale from "1" to "4". It has been demonstrated that the STAI has adequate validity and internal consistency of .83 (Spielberger, Gorsuch, & Lushene, 1970).

Client Satisfaction Questionnaire-8. This is a questionnaire that consists of 8 questions assessing overall satisfaction with the treatment or services received in a particular program. Initially, this questionnaire was formed in order to assess client satisfaction with mental health programs. However, it is now being utilized in many other fields (McMurtry and Hudson, 2000). It has an internal consistency ranging from .83 to .94 (Cox, Brown, Peterson, & Rowe, 1982).

Subjective Ratings. Participants rated on a Likert-type scale how helpful they found each

individual session. Additional questions addressed how many sessions were missed. If a session had been missed, the respondent indicated the reason for missing that particular session. There were also open-ended questions regarding the most/least beneficial aspects of the intervention.

Procedure

Participants in the intervention group completed all of the questionnaires except the satisfaction questionnaire prior to the first session. Participants met for eight one-hour sessions weekly, over an eight-week period. The sessions took place on The Ohio State University campus and were directed by a doctoral student in Clinical Health Psychology. Weekly topics included: heart failure and social support, coping with physical symptoms, coping with emotions related to being sick, barriers to following a treatment plan, barriers to exercise and physical activity, communicating needs and feelings to others, stress management, and strategies for maintaining changes. The group sessions were designed to provide educational information as well as provide a network of social support. When participants missed group sessions, they were contacted by telephone by the group leaders and were given the information that had been included in the session for that week.

Following the last group session, each participant completed the same self-report questionnaires from the baseline assessment, in addition to the CSQ-8 and the subjective ratings form.

Statistical Analysis

The primary methods of data analysis included t-tests and correlational analyses to evaluate change in psychological distress over time as well as the association of participant satisfaction with psychological distress. SAS for Windows, version 9.1 was used.

Results

Among the 17 participants who agreed to participate in the study, 4 withdrew before completing any of the measurements at baseline. Participant race distribution was 58.82% African American and 41.18% Caucasian. Six participants (35.29%) were married, seven (41.18%) were divorced, three (17.65%) were single, and one (5.88%) was widowed. Mean education was 13.18 ± 1.24 years. Mean number of comorbid conditions was 3.33 ± 2.29.

Baseline measurements were completed by 13 participants and post-intervention measurements were completed by 9 participants. The mean scores in the intervention group for the measurements, CES-D, STAI, and PSS-10 at baseline and post-intervention are shown in Table 1.

The mean for all of the measures did not significantly change over the course of the intervention as seen in Table 1. T-tests yielded no statistically significant changes from baseline to post-intervention. The mean perceived stress score for women in a normative sample is 13.7 and in a population aged 55-64 is 11.9 (Cohen and Williamson, 1988). This sample had a mean of 17.23. A score over 16 on the CES-D indicates a depressive state (Radloff, 1977). The mean for this sample was higher than 16 both at baseline and post-intervention.

Table 2 presents the Pearson correlation coefficients of study variables at baseline. Higher trait anxiety was significantly correlated with depression ($r= 0.65$, $p= 0.04$), state anxiety ($r= 0.60$, $p= 0.03$) and perceived stress ($r= 0.57$, $p= 0.04$). Perceived stress was significantly correlated with depression ($r= 0.68$, $p= 0.01$). Age was significantly correlated with depression ($r= -0.70$, $p= 0.009$) and perceived stress ($r= -0.59$, $p= 0.03$).

Table 3 presents the Pearson correlation coefficients of between study variables at post-intervention. Higher depression was significantly correlated with trait-anxiety ($r= 0.87$, $p= 0.003$)

and state-anxiety (r= 0.73, p= 0.03). Age was significantly correlated with perceived stress (r= -0.60, p= 0.05).

Satisfaction was not correlated with any of the measurements at post-intervention. Table 4 displays the means of the CSQ-8, attendance, and the ratings of helpfulness for each session for those who attended. Overall satisfaction was not significantly correlated with individual ratings of helpfulness or attendance. Attendance was significantly correlated with the ratings of helpfulness from the second session (r= 0.90, p= 0.005).

Discussion

Satisfaction did not predict social support intervention attendance or change in state and trait anxiety, depression, and perceived stress. Depression, perceived stress, and anxiety levels were not significantly reduced following the intervention.

Results concerning depression, perceived stress, and anxiety are consistent with results of other studies. Depression rates are relatively high for cardiac patients (Vinson et al., 1990) thus it was not surprising that participants in this study were significantly depressed. Radloff (1977) indicates that individuals with depression scores over 16 are likely to be in a depressive state. The mean for the intervention group was approximately 38. This could be due to the ongoing struggle with adjusting to heart failure itself. Vinson and Sperry (1990) report that cardiac patients who experience depression are less likely to follow their treatment regimen. This could contribute to the low attendance, averaging only 4.5 sessions.

Depression levels prior to the intervention were significantly positively correlated with trait anxiety and perceived stress. Perceived stress and state and trait anxiety scores were higher than a normative population. This could again be attributed to the fact that this is an extremely ill

population. Psychological distress may contribute to low adherence to the social support intervention.

Although previous research has indicated a relationship between satisfaction and treatment compliance, there was no influence of satisfaction on compliance in this study. Previous research, however, has focused more heavily on other aspects of treatment compliance such as compliance with medications. In this study, participants were required to leave their own home to get to the study site which may have contributed to low adherence. Congestive heart failure patients often have many physical symptoms including fatigue, shortness of breath, and edema (Kereiakes & Wetherill, 2001), making attendance at groups more challenging physically. Three participants reported being too ill or having a lack of energy as reasons for not attending the group sessions on more than one occasion. Lack of transportation or bus fare was a reason stated for missing more than one session for three other women. Since research has shown the many benefits of providing social support therapy to ill populations, such as lower healthcare costs and generally improving treatment compliance, it is important to continue research in this area. It is important for future research to examine ways of possibly providing social support to this population and other chronically ill populations. For example, the study by Bambauer et al. (2005) found that a phone intervention that provided social support to patients with cardiac disease contributed to significant reductions in psychological and mental distress.

The highest rated session in the intervention was week three, “Coping with Thought/Emotions Related to Heart Failure”. Of the seven participants who attended, three people stated it was very helpful, three people said it was moderately helpful, and one person indicated it was somewhat helpful. The lowest rated session was week five, “Barriers to Exercise and Physical Activity”. Of the five participants who attended, three people indicated it was

somewhat helpful, one person rated it moderately helpful, and one person rated it very helpful. Three participants indicated that they really liked having other people to talk to. Two participants indicated that they learned more about their condition. On the negative side, one participant indicated that she wanted to learn more about coping with the financial responsibilities of the condition.

There were many limitations of this study. First, it was a small-scale study due to the difficulty of recruiting participants. The small sample size limited the statistical power. However, minority participation was very good with over half of the participants being African American. Although, recruitment for this particular study occurred for a full year, overall willingness to participate was low. Participation appeared to be limited by severity of illness. After participants agreed to participate in the study, the overall turnout at the sessions was low, averaging only 4.5 sessions. However, participants who were unable to attend did receive telephone contact during that week. Due to the low amount of sessions participants actually attended, it is difficult to draw any clear conclusions. Attendance across the three cohorts varied considerably from a mean of 2 sessions in the first cohort to 7.3 sessions in the third cohort ($p \leq 0.5$). Group cohesiveness and support may have influenced attendance, but the present study did not evaluate these results.

This study indicates that a social support intervention among depressed patients with CHF had limited effects. Adherence was poor, probably due to both depression and physical impairment. Satisfaction was not relevant to outcomes, because the changes were minimal. Future research examining satisfaction with interventions such as social support therapy would benefit individuals with chronic disease as well as healthcare practitioners who strive to provide the very best services to their patients.

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Table 1

Mean scores of Baseline and Post-Intervention for Center for Epidemiologic Studies Depression Inventory (CES-D), State-Trait Anxiety Inventory (STAI), and Cohen's Perceived Stress Scale-10 (PSS-10)

Measure		Baseline (n=13)		Immediately after intervention (n=9)	
		Mean	SD	Mean	SD
CES-D		37.92	11.91	36.78	9.61
STAI	State	41.38	10.13	40.00	8.91
	Trait	43.07	8.12	43.56	6.91
PSS-10		17.23	8.68	17.11	7.37

Table 2

Pearson correlation coefficients among study variables at baseline (N= 13)

Variables	CESD	STAI- State	STAI- Trait	PSS
Age	-0.70*	-0.02	-0.12	-0.59*
CESD	—	0.42	0.64*	0.68*
STAI- State	—	—	0.60*	0.19
STAI- Trait	—	—	—	0.57*

* Correlation is significant at the 0.05 level

Table 3

Pearson correlation coefficients among study variables at post-intervention (N= 9)

Variables	CESD	STAI- State	STAI- Trait	PSS
Age	-0.19	-0.40	-0.06	-0.67*
CSQ- 8	-0.13	-0.06	-0.01	-0.40
CESD	—	0.73*	0.87*	0.58
STAI- State	—	—	0.58	-0.58
STAI- Trait	—	—	—	-0.41

* Correlation is significant at the 0.05 level

Table 4

Means of the Client Satisfaction Questionnaire (CSQ-8), Attendance, and session helpfulness for those who attended

Measure	N	Mean	SD	Max. Score
CSQ-8	10	24.00	2.02	32
Overall Attendance	11	4.55	2.94	8
Session: 1) Heart failure and social support	4	3.75	0.71	4
2) Coping with physical symptoms	7	2.86	0.69	4
3) Coping with emotions	7	3.28	0.76	4
4) Barriers to following a treatment plan	5	2.60	0.55	4
5) Barriers to exercise and physical activity	5	2.60	0.89	4
6) Communicating needs/feelings to others	7	3.00	1.00	4
7) Stress management	6	2.66	1.03	4
8) Strategies for maintaining change	0	__	__	4